

Roasting process does not affect anti-inflammatory properties of coffee extracts

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Abstract:

Coffee is consumed as a beverage worldwide, however, data from epidemiologic studies related to the effect of coffee on inflammation are conflicting, showing that coffee consumption by healthy individuals can be either directly ^[1], inversely ^[2], or not associated with pro-inflammatory biomarkers ^[3]. Moreover, to date, the ever-important question concerning coffee active compounds and biochemical pathways underlying its anti-inflammatory properties remain obscure. Nevertheless, during the roasting process, several bioactive molecules are formed and sequestered to the brown polymeric melanoidins ^[4] resulting in a gain-and-loss of biological function.

In this research, differences between immune-modulatory properties exert by green (GCE) and roasted coffee extracts (RCE) are tested in THP-1 cells derived macrophages.

Results indicate that GCE, more than RCE, significantly suppress the activation of the nuclear factor – κ B, which is involved in the production of pro-inflammatory cytokines, e.g. IL-6, IL-1 β and TNF- α . Further exploration of potential effects of coffee extracts on these key inflammatory mediators revealed that both GCE and RCE concentration-dependently inhibit the production of IL-6 and IL-1 β , but not TNF- α . Additional studies are required to understand the mechanism through which this modulation occurs.

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